RECLAMATION

Managing Water in the West

2009 Compliance Monitoring and Evaluation Report

In compliance with the "Management Agency Agreement between the Central Valley Regional Water Quality Control Board and the Bureau of Reclamation" executed on December 22, 2008.

Draft October 23, 2009
January 1, 2010

U.S. Department of the Interior

Bureau of Reclamation
Mid-Pacific Region

Contents

Abbreviations and Acronyms

Action Plan	Actions to Address the Salinity and Boron TMDL Issues for the Lower San Joaquin River
Basin Plan	Water Quality Control Plan for the Sacramento and San Joaquin River Basins, 4th Edition
BMP	Best Management Practices
CALFED	CALFED Bay-Delta Program
CDEC	California Data Exchange Center
CDFG	California Department of Fish and Game
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CV-SALTS	Central Valley Salinity Alternatives for Long-Term Sustainability
DMC	Delta-Mendota Canal
DWR	California Department of Water Resources
Draft Plan	Draft Compliance and Monitoring Plan (this document)
EC	electrical conductivity
EWA	Environmental Water Account
GBP	Grassland Bypass Project
GDA	Grassland Drainage Area
ID	irrigation district
Interior	U.S. Department of the Interior
LSJR	Lower San Joaquin River
MAA	Management Agency Agreement
µS/cm	micro Siemens per centimeter
QA	Quality Assurance
QC	Quality Control
Reclamation	Bureau of Reclamation
Regional Water Board	Central Valley Regional Water Quality Control Board
RTMP	Real Time Management Program
Service	U.S. Fish and Wildlife Service
SWRCB	State Water Resources Control Board
TAF	thousand acre-feet
USGS	United States Geological Survey
VAMP	Vernalis Adaptive Management Plan
WAP	Water Acquisition Program
WQO	water quality objective
WRDP	Westside Regional Drainage Plan

Purpose

The purpose of the "2009 Compliance Monitoring and Evaluation Report" (Draft Plan) is to meet one commitment of the initial monitoring, reporting, and assessment program agreed to in the "Management Agency Agreement between the Central Valley Regional Water Quality Control Board and the United States Bureau of Reclamation" (MAA) executed on December 22, 2008. The MAA describes the cooperative actions Reclamation will take under the Salt and Boron Total Maximum Daily Load for the lower San Joaquin River (Basin Plan Amendment[1]) as described in the Water Quality Control Plan for the Sacramento and San Joaquin River Basins, 4th Edition (Basin Plan). The MAA states:

> [The United States Bureau of] Reclamation will submit a *Draft Compliance Monitoring and Evaluation Plan* to the Regional Water Board. Where appropriate, the draft plan will propose the data and quantification methods used to evaluate the salt loads from Delta-Mendota Canal (DMC) operations and salinity offset credits to be applied to the various elements of Reclamation's Action Plan.
>
> Data will include monitoring locations, parameters monitored, data collection methods, and data quality control. Included with the proposed quantification methods for salt load offset credits for each element of Reclamation's Action Plan will be a description of the salt mitigation benefit of each element and a clear explanation of how the proposed quantification method accurately quantifies the salt load effect.

The MAA refers to Reclamation's Salinity Management Plan of Actions to Address the Salinity and Boron Total Maximum Daily Load Issues for the Lower San Joaquin River (Action Plan), which can be downloaded at

http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/ vernalis_salt_boron/draft_maa_plan.pdf

The MAA can be downloaded at

http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/vernalis_salt_boron/signed_maa_22dec08.pdf.

Reclamation submitted the Draft Plan to the Central Valley Regional Water Quality Control Board (Regional Water Board) on July 1, 2009. On September 29, 2009 Regional Water Board staff submitted comments and suggested revisions on the Draft Plan. This Report presents 2009 data using the methodology and data described in the Revised Draft Plan.

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[1] A TMDL specifies the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards and allocates pollutant loadings among point and nonpoint pollutant sources. A TMDL is the sum of the individual wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and natural background (40 CFR 130.2) with a margin of safety (CWA section 303(d)(1)(c)). (US EPA TMDL Guidance, 2005)

A. Flow Actions

1. New Melones Reservoir Operations – Provision of Dilution Flow

Status: New Melones Reservoir currently provides dilution flows to meet the Vernalis water quality objectives (WQOs) – essentially diluting salinity loads for the entire basin in real time. These flows offset salinity loads imported through the DMC. The combination of land retirement, increased level IV refuge water supply, and reduced salt loading from the Grasslands Bypass Project has altered the hydrology of the Basin and has improved the water quality of the San Joaquin River over the past ten years. New Melones Reservoir dilution flows currently provide the final action to ensure the water quality standard will be met. Through Public Law 108-361, Reclamation is directed to develop and implement the Program to Meet Standards, in part to reduce the reliance on New Melones Reservoir to provide flows to meet water quality and fish objectives. Included in the Program to Meet Standards is the purchase of water from willing sellers and an update to the plan of operation for the New Melones Reservoir. The status of these efforts will be updated in quarterly and annual reports.

2009 Dilution Flow Allocation: WY2009 was classified as a dry year.

Table 1: Goodwin Dam Monthly Dilution Flow Allocation, tons

	Goodwin Dam Flow, TAF	Base Flow, TAF	Q_{dil} , TAF	WQO, µS/cm	C_{dil} (monthly average EC at Orange Blossom Bridge), µS/cm	Dilution Flow Allocation, A_{dil}, tons
Oct	25	10	15	1000	73	11,531
Nov	15	14	1	1000	79	764
Dec	15	13	2	1000	72	1,539
Jan	11	12	0	1000	80	0
Feb	15	19	0	1000	83	0
Mar	18	17	1	1000	90	755
April	52	28	24	700	66	12,619
May	54	61	0	700	68	0
Jun	37	2	35	700	73	18,199
Jul	20	3	17	700	67	8,924
Aug	17	12	5	700	67	2,625
Sep	32	15	17	1000	69	13,125

2. Water Acquisitions – Water Acquisitions Program

Status: The WAP is an ongoing program authorized through the CVPIA. The VAMP Agreement is in the process of being extended to 2011. The State Water Resources Control Board is re-evaluating flow requirements for fishery protection on the San Joaquin River, which will establish the direction of post-VAMP fish flow obligations.

2009 Accomplishments: In October 2008, Reclamation purchased 12.5 TAF on the Merced River (Q_{dil}). The salinity (EC) of these flows was 87 µS/cm, so the dilution flow allocation is 9,464 tons.

3. DMC Recirculation – Provision of Dilution Water

Status: No recirculation occurred in 2009. A Preliminary Feasibility Report is scheduled to be finalized by the end of the year.

B. Salt Load Reduction Actions

1. Grassland Bypass Project/ Westside Regional Drainage Plan

Status: The Grassland Bypass Project (GBP) is in the 15th year of its implementation. Reclamation provided $6.385 million in grant funding in 2009 to implement the GBP.

2009 Accomplishments: The 2009 annual report is not due until the end of 2009. Other activities include:

- Reclamation continues to administer the 2001 Agreement to Use the San Luis Drain and meet the terms of the 2001 Waste Discharge Requirements. The agreement will end December 31, 2010.
- In Water Year 2009, the third year of drought reduced the acres of irrigated field crops in the Grassland Drainage Area (GDA). Consequently, the volume of unusable subsurface drainage water discharged from the GDA to Mud Slough (north) was significantly reduced. The annual load of salts discharged in 2009 are estimated to be about 54,000 tons, the lowest in 23 years and half of the load discharged in drought year 1991.
- Reclamation is negotiating a third use agreement to continue the GBP through 2019, allowing more time to obtain funds to construct treatment facilities that will completely eliminate all discharges of unusable agricultural subsurface drainage water from the GDA to the San Joaquin River and local wetland water supply channels.
- Reclamation has completed important documentation to support the new Use Agreement, including an Administrative Draft EIS/EIR, prepared by Entrix Inc. Written comments were received from 14 agencies for Appendix 1.
- The EIS/EIR for the continuation of the GBP was completed and sent to the EPA. A notice of availability will be published in the Federal Register soon. The San Luis and Delta-Mendota Water Authority has certified that the document complies with CEQA and the Regional Board will use the document to proceed with the amendment to the Basin Plan. The NEPA portion will be completed with the receipt of a Biological Opinion from the US Fish and Wildlife Service.

Reclamation also executed a grant for $6.385 million dollars to support development of the Westside Regional Drainage Plan. The grant, combined with state Proposition 50 funding and local cost sharing, will be used to develop more than 6,000 acres of reuse lands. This reuse area has been an important tool to ensure the success of the Grassland Bypass Project.

- Funds will be used to install facilities to collect and distribute drain water across the reuse area, remove and replace open drain ditches that were hazardous to waterfowl, and line earth canals with concrete to reduce seepage losses.
- Funds will also be used to line water supply canals in three districts in the GDA to reduce seepage losses to the shallow aquifer, and to plumb six sumps that currently discharge highly saline groundwater into the DMC.

2. Conservation Efforts

Status: The Water Conservation Program is an ongoing program mandated through the Reclamation Reform Act of 1982 and the Central Valley Project Improvement Act of 1992 (CVPIA).

2009 Accomplishments: Under the 2009 CALFED Grant Program, two proposals from the water districts within the San Joaquin Basin have been awarded. These proposals included canal lining and spill recovery projects. San Luis WD received a $554,665 grant to line 3.3 miles of unlined canal. The total project cost is $1,109,330. Merced ID received a $1,000,000 grant to provide improvements several laterals, and install 3 SCADA sites and automated gates in order to reduce seepage and reduce system spills. The total project cost is $2,487,000.

The Water for America Initiative has awarded nine Water Marketing and Efficiency Grants and one System Optimization Review Challenge Grant projects in the San Joaquin Valley as follows:

- Arvin-Edison Water Storage District received a $300,000 grant for water banking and efficiency measures. The total project cost is $878,800.
- Buena Vista Water Storage District received a $300,000 grant to construct a new turnout structure. The total project cost is $4,155,776.
- Delano-Earlimart ID received a $300,000 grant for a groundwater recharge basin, recovery and monitoring wells. The total project cost is $1,014,100.
- Fresno ID received a $300,000 grant to construct a groundwater recharge basin, recovery and monitoring wells. The total project cost is $1,600,195.
- Lower Tule River ID received a $300,000 grant for canal improvements including SCADA installation. The total project cost is $606,000.
- Madera ID received a $299,715 grant to develop a groundwater bank system. The total project cost is $1,110,816.
- Semitropic Water Storage District received a $300,000 grant to install water measurement devices to manage water from a groundwater bank. The total project cost is $1,514,000.

- Shafter-Wasco ID received a $300,000 grant to make canal improvements to increase capacity. The total project cost is $650,400.
- Tulare ID received a $300,000 grant to construct water banking facilities. The total project cost is $1,060,000. Tulare ID also received a $300,000 system optimization grant to study the optimization of surface and groundwater resources. The total project cost is $655,150.

Under the American Recovery and Reinvestment Act, Reclamation identified four projects within the San Joaquin basin to be awarded. The program has a 50% applicant cost-share requirement and awards will range from $1,000,000 to $5,000,000. The projects include recharge and delivery systems for groundwater banking, and canal improvement projects. Additional information will be provided post award.

C. Mitigation Actions

1. Real Time Management Program – Development of Stakeholder-Driven Program

Status: Brief Description: The Real Time Management Program is described in the TMDL as a stakeholder driven effort to use "real-time" water quality and flow monitoring data to support water management operations in order to maximize the use of assimilative capacity in the San Joaquin River. The Regional Board describes this assimilative capacity as up to 85% of the load determined by Vernalis salinity objective. Reclamation has contracted with a facilitation firm to support the development of a stakeholder-driven program. The program schedule, meeting notes, related documents, and additional information regarding the program are available at http://www.sanjoaquinriverrtmp.com/.

2009 Activities: Actions undertaken in 2009 include:

- Reclamation continued to employ consultants to facilitate stakeholder involvement in developing a Real Time Management Program (RTMP).
- Reclamation held two stakeholder workshops.
- Reclamation obtained additional technical support for FY 2010.
- Reclamation's contractor CDM initiated efforts to develop a salt source map and white paper for the project area.
- Reclamation staff began conversion of information on TMDL loading and allocation schemes into a white paper for program discussion.

2. Real Time Management Program – Technical Support

Status: A successful RTMP will require a real time monitoring network and a model capable of reasonably accurate forecasting of assimilative capacity. Reclamation is committed to participate in the development and support of these tools. Reclamation staff has valuable experience in both of these areas. The technical support of this program will follow the stakeholder process.

2009 Activities: Reclamation's consultant developed a graphical user interface (GUI), water quality data management tool, and a database model which were presented at the second stakeholder workshop. Stakeholders participated in several work groups and discussions occurred in routine conference calls. Discussions during these meetings intersect many other programs and there is a need for great coordination amongst agency members and stakeholders.

Reclamation engaged Berkeley National Laboratory to oversee the development and analysis of various salinity scenarios through the WARMF model. Results were presented at the second stakeholder workshop.

3. Wetlands Best Management Practices Plan

Status: Reclamation has been working with the Service, CDFG, and the Grassland Water District to develop a Strategic Wetlands BMP Plan. Reclamation also provides resources to support the development of a real-time monitoring network (over 28 stations) and other potential BMP analysis tools within federal, state, and private managed wetlands. At present, the Plan has not been completed and released to the public.

2009 Activities: Reclamation has sponsored a project entitled "Water Quality Monitoring in the Grassland Resource Conservation District." This 3-year project will retrofit 6 existing monitoring stations and integrate these stations with stations carried over from a SWRCB-sponsored pilot project on wetland real-time salinity management. Twenty-eight additional stations are being installed in the Grassland Water District, CDFG, and US Fish and Wildlife Service lands. All stations will become part of a sensor network currently supported by YSI EcoNet. Research supported by Reclamation as part of this project is investigating data management systems and is developing software that will integrate existing sensor networks into a common decision support system. The decision support system will ultimately be used to help schedule wetland salt loading to the San Joaquin River.

Berkeley National Laboratory has provided project oversight for the installation of new stations is 80% complete in the Grassland Water District, Los Banos WMA and San Luis NWR. All installed stations are currently telemetered for flow, temperature and electrical conductivity through YSI-EcoNet and the NIVIS data server. Instantaneous data is publicly available through the Grassland Water District website – time series data will be made available to the public after undergoing data quality assurance. This data management system has been successfully deployed for the past 3 years: however; it is not a viable long-term enterprise solution for the watershed – the scaled up costs are beyond what is affordable to the wetland entities – therefore alternative systems are being investigated.

Reclamation is working with the Service, CDFG, and local wetlands managers to update and finalize the BMP Plan taking into consideration the data being generated within the Basin that can provide a more quantitative characterization of wetland hydrology than has been possible in the past.

Reclamation is sponsoring several groundwater conjunctive use investigations in the western San Joaquin Basin that have direct relevance to salinity management. The first project will drill and complete two production wells in the Volta Wildlife Management Area to supplement current wetland water supply. These wells will be continuously monitored for electrical conductivity and drawdown to assess long term impacts on refuge water quality and local groundwater resources. Well sites have been selected, implementation documentation is being prepared and a monitoring plan has been developed. Construction on the first well, located north of the Volta Wasteway, is scheduled for completion within 6 months.

4. Involvement in CV-SALTS program

Status: The Central Valley Water Board and State Water Board initiated a comprehensive effort to address salinity problems in California's Central Valley and adopt long-term solutions that will lead to enhanced water quality and economic sustainability. The Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) is a collaborative basin planning effort aimed at developing and implementing a comprehensive salinity management program. The goal of CV-SALTS is to maintain a healthy environment and a good quality of life for all Californians by protecting the state's most essential and vulnerable resource: water.

2009 Activities: Reclamation continues to participate in various sub-committees of the program – Leaders Group, Technical Advisory Committee, Education and Outreach. In addition:

- Reclamation was involved in the development and review of solicitation packages from potential contractors to conduct a salt and nitrate pilot study.
- Reclamation provided an update to the technical advisory committee regarding MAA and RTMP activities.
- Reclamation issued a contract to Montgomery Watson Harza to complete a pilot source study in the Northwest and Grassland areas.

D. Central Valley Project Deliveries Load Calculation

Loads were calculated using the methodology and coefficients described in the Revised Draft Compliance Monitoring and Evaluation Plan.

2009 Calculations: Total salinity loads from the DMC and Mendota Pool are summed for the each subarea. The DMC loads that are above the TMDL load allowance are calculated by subtracting the allowance from the load. Calculations are presented in Tables 2 through 5.

Excess CVP salinity loads from deliveries to both subareas are summarized in Table 6.

Table 2: WY2009 San Joaquin River and Mendota Pool Deliveries from CVP (Grassland Subarea)

	Laguna WD (via CCID),TAF	San Luis WD (via CCID), TAF	Central California ID (CCID), TAF	Columbia Canal Co, TAF	Firebaugh Canal WD, TAF	San Luis Canal Co (SLCC), TAF	Grassland WD (via CCID & SLCC), TAF	Kesterson (USFWS) (via CCID), TAF	Los Banos WMA (CDFG) (via CCID), TAF	San Luis NWR (USFWS) (via SLCC), TAF	China Island Unit (CDFG), TAF	Salt Slough Unit (CDFG), TAF	Freitas Unit (USFWS) (via CCID), TAF	Total Deliveries, TAF	Average TDS at Check 21, mg/L	Monthly Salt Load, thousand tons
Multiplier	1.00	1.00	0.87	0.94	1.00	1.00	1.00	0.85	1.00	0.85	0.86	1.00	0.85	NA	NA	NA
September to March Standard, 1000 µS/cm																
Oct	0	0	26.0	3.3	2.1	2.0	9.6	0	4.6	3.5	0.8	1.6	1.9	55.4	330	24.9
Nov	0	0	1.6	0	1.7	2.8	10.2	1.0	2.4	2.5	0.9	1.2	1.4	25.7	320	11.2
Dec	0	0	0	0	0.9	0	0	0	0	0	0	0	0	0.9	504	0.6
Jan	0	0	0	0	0	0	0.4	0.8	1.8	1.5	0.1	0.8	0.8	6.1	571	4.8
Feb	0	0	9.5	0	1.2	0	2.4	0.1	1.0	10.4	0.6	0.7	1.2	27.2	557	20.6
Mar	0	0	26.8	4.5	3.8	9.0	0	0.2	0.1	1.5	0.1	0.1	0.2	46.4	449	28.3
April to August Standard, 700 µS/cm																
Apr	0	0	20.1	6.4	4.8	16.0	0.7	0.1	0.1	0.3	0.1	0.1	0.1	48.9	378	25.1
May	0	0	42.7	7.2	6.0	15.6	1.3	0.2	0.1	3.0	0.1	0.1	0.2	76.5	366	38.1
Jun	0	0.1	50.1	6.9	4.7	23.0	1.1	0.1	0.2	2.3	0	0.1	0.1	88.8	376	45.4
Jul	0	0	59.3	8.5	4.1	28.7	0.2	0	0.2	2.1	0.2	0.1	0	103.4	223	31.4
Aug	0	0	46.7	7.3	4.4	24.7	0.4	0.1	0.8	0	0.2	0.3	0	84.9	308	35.6
September to March Standard, 1000 µS/cm																
Sep	0	0	35.3	6.7	3.1	8.8	24.3	0	2.5	4.8	0.4	0.6	0.3	86.9	361	42.6

Table 3: WY 2009 Delta- Mendota Canal Deliveries from CVP (Grassland Subarea)

	Del Puerto WD,TAF	Eagle Field WD, TAF	Mercy Springs WD, TAF	Oro Loma WD, TAF	Panoche WD - Ag, TAF	Panoche WD - M&I, TAF	San Luis WD - Ag, TAF	San Luis WD - M&I, TAF	Central California ID (Abv C, TAF	Central California ID (Blw C, TAF	Firebaugh Canal WD, TAF	Total Deliveries, TAF	Average EC at Check 13, µS/cm	Monthly Salt Load, thousand tons
Multiplier	0.21	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.87	0.87	1.00	NA	NA	NA
September to March Standard, 1000 µS/cm														
Oct	0.6	0	0.2	0	0.1	0	0.2	0	0.8	0.2	0	2.1	508	0.9
Nov	0.2	0	0	0	0.2	0	0	0	0.3	0.1	0.1	0.9	612	0.4
Dec	0.1	0	0	0	0.1	0	0.1	0	0.7	0	0	0.9	753	0.6
Jan	0.1	0	0	0	0	0	0.1	0	0	0	0.7	0.9	828	0.6
Feb	0.1	0	0	0	0	0	0	0.1	0	0.2	0.1	0.5	846	0.4
Mar	0.4	0	0	0	0.1	0	0.1	0	1.0	11.9	0.1	13.7	667	7.7
April to August Standard, 700 µS/cm														
Apr	0.9	0	0.1	0	0.6	0	0.4	0	1.2	6.9	0.8	10.9	543	5.0
May	1.5	0	0.1	0	0.5	0	0.6	0	2.3	15.5	1.0	21.6	541	9.9
Jun	1.5	0	0.1	0	0.4	0	0.8	0	1.3	17.2	3.5	24.9	556	11.7
Jul	2.0	0	0.2	0	0.9	0	0.9	0	2.1	27.3	5.2	38.5	308	10.0
Aug	1.4	0	0.1	0	0.5	0	0.5	0	2.1	22.8	1.4	28.9	440	10.7
September to March Standard, 1000 µS/cm														
Sep	0.8	0	0	0	0	0	0.2	0	1.4	0.3	0.2	3.0	514	1.3

Table 3 (Continued): WY 2009 Delta- Mendota Canal Deliveries from CVP (Grassland Subarea)

	China Island Unit (CDFG) (76,TAF	Frietas Unit (USFWS) (76.05L), TAF	Salt Slough Unit (CDFG) (76, TAF	Los Banos WMA (CDFG) (76.05), TAF	Volta WMA (CDFG), TAF	Grassland WD (76.05L & CCID), TAF	Grassland WD (Volta Wasteway), TAF	Kesterson Unit (USFWS) (Volta Wasteway), TAF	Kesterson Unit (USFWS) (76.0), TAF	Total Deliveries, TAF	Average EC at Check 13, µS/cm	Monthly Salt Load, thousand tons
Multiplier	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	NA	NA	NA
September to March Standard, 1000 µS/cm												
Oct	0	0	0	0	2.8	12.7	11.8	1.5	0	28.8	508	12.3
Nov	0	0	0	0	1.5	7.6	1.0	0	0	10.1	612	5.2
Dec	1.0	0.9	0.9	0.8	0.2	0.5	0.3	0	0.8	5.5	753	3.5
Jan	0.8	0	0	0	0.7	0	2.3	0	0	3.8	828	2.6
Feb	0	0	0	0	0.5	1.0	0	0.7	0	2.2	846	1.6
Mar	0.3	0.7	0.4	0.3	0	0	0	0	0.6	2.2	667	1.2
April to August Standard, 700 µS/cm												
Apr	0.3	0.4	0.2	0.4	0.2	2.0	0.7	0	0.2	4.5	543	2.0
May	0.3	0.6	0.3	0.2	0	3.7	3.6	0.7	0.7	10.2	541	4.7
Jun	0.1	0.3	0.3	0.5	0	3.2	0.1	0	0.4	5.0	556	2.3
Jul	0.6	0	0.2	0.5	0.3	0.5	0	0	0	2.1	308	0.6
Aug	0.6	0	1.0	1.1	2.0	1.1	0.2	0	0.2	6.2	440	2.3
September to March Standard, 1000 µS/cm												
Sep	0.4	0.3	0.6	1.3	2.7	17.3	14.0	0.9	0	37.5	514	16.2

Table 4: WY 2009 San Luis and Cross Valley Canal Deliveries from CVP (Grassland Subarea)

	CDFG - O'Neill Forebay WMA, TAF	City of Dos Palos, TAF	Pacheco WD, TAF	Pacheco CCID Non-project (Hamburg), TAF	Panoche WD, TAF	San Luis WD, TAF	San Luis WD - Ag (via O'Neill Forebay), TAF	San Luis WD - M&I (via O'Neill Forebay), TAF	VA Cemetery, TAF	Total Deliveries, TAF	Average EC at Check 13, µS/cm	Monthly Salt Load, thousand tons
Multiplier	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	NA	NA	NA
September to March Standard, 1000 µS/cm												
Oct	0.1	0.1	0	0.1	0.9	4.7	0.3	0.1	0	6.4	508	2.8
Nov	0.1	0.1	0	0.1	0.3	2.7	0.2	0.1	0	3.6	612	1.8
Dec	0.1	0	0.1	0	0.3	0	0.1	0	0	0.7	753	0.4
Jan	0.1	0	0	0.3	0	0.7	0	0	0	1.2	828	0.8
Feb	0	0	0	0.3	0.4	1.8	0.5	0	0	3.1	846	2.2
Mar	0	0.1	0	0.8	1.6	3.7	0.2	0	0	6.3	667	3.5
April to August Standard, 700 µS/cm												
Apr	0	0.1	0	1.1	2.9	6.5	0.7	0.1	0	11.4	543	5.2
May	0.1	0.1	0.2	1.7	3.1	9.5	0.7	0.1	0	15.5	541	7.1
Jun	0.1	0.2	0.8	0.8	4.2	10.2	1.0	0.1	0	17.4	556	8.1
Jul	0.1	0.2	1.5	0	4.1	11.3	1.0	0.1	0	18.4	308	4.8
Aug	0.1	0.2	0.7	0	2.4	7.3	0.4	0.1	0	11.1	440	4.1
September to March Standard, 1000 µS/cm												
Sep	0.1	0.1	0.2	0	1.0	4.4	0.2	0.1	0	6.2	514	2.7

Table 5: WY 2009 Deliveries from CVP to Northwest Subarea

	San Joaquin River and Mendota Pool Deliveries from CVP					*Delta- Mendota Canal Deliveries from CVP*									
	China Island Unit (CDFG), TAF	Central California ID (CCID), TAF	Total Deliveries, TAF	Average TDS at Check 21, mg/L	Monthly Salt Load, thousand tons	Banta-Carbona ID, TAF	Del Puerto WD, TAF	Patterson WD, TAF	West Stanislaus ID, TAF	Central California ID (Abv Ck13), TAF	Central California ID (Blw Ck 13), TAF	China Island Unit (CDFG) (76), TAF	Total Deliveries, TAF	Average TDS at Headworks, mg/L	Monthly Salt Load, thousand tons
Multiplier	0.14	0.13	NA	NA	NA	0.06	0.79	1.00	0.96	0.13	0.13	0.14	NA	NA	NA
September to March Standard, 1000 µS/cm															
Oct	0.1	4.0	4.1	330	1.9	0	2.3	0.6	0	0.	0	0	2.9	225	0.9
Nov	0.1	0.2	0.4	320	0.2	0	0.8	0.1	0	0	0	0	0.9	179	0.2
Dec	0	0	0	504	0	0	0.2	0	0	0.1	0	0.2	0.2	483	0.2
Jan	0	0	0	571	0	0	0.3	0	0	0	0	0.1	0.3	527	0.2
Feb	0.1	1.5	1.6	557	1.2	0	0.2	0.1	0	0	0	0	0.4	532	0.3
Mar	0	4.1	4.1	449	2.5	0	1.4	0	0	0.2	1.8	0	1.4	399	0.8
April to August Standard, 700 µS/cm															
Apr	0	3.1	3.1	378	1.6	0	3.3	0.2	0	0.2	1.1	0	3.5	326	1.6
May	0	6.6	6.6	366	3.3	0	5.5	0.2	0	0.4	2.4	0.1	5.7	269	2.1
Jun	0	7.7	7.7	376	3.9	0	5.7	0.2	0.4	0.2	2.7	0	5.9	384	3.1
Jul	0	9.1	9.1	223	2.8	0.1	7.5	0.5	3.5	0.3	4.2	0.1	8.1	235	2.6
Aug	0	7.2	7.2	308	3.0	0	5.2	0.5	1.0	0.3	3.5	0.1	5.7	325	2.5
September to March Standard, 1000 µS/cm															
Sep	0.1	5.4	5.5	361	2.7	0	3.0	0.3	0	0.2	0	0.1	3.3	379	1.7

Table 6: Calculation of WY2009 DMC Allocations and Loads

	Grassland Subarea						**Northwest Subarea**					**Total**
	San Joaquin River and Mendota Pool Deliveries from CVP, load in thousand tons	Delta- Mendota Canal Deliveries from CVP, load in thousand tons	San Luis and Cross Valley Canal Deliveries from CVP, load in thousand tons	Total Flow, TAF	Load Allocation, thousand tons	Actual Load – Load Allocation, thousand tons	San Joaquin River and Mendota Pool Deliveries from CVP, load in thousand tons	Delta- Mendota Canal Deliveries from CVP, load in thousand tons	Total Flow, TAF	Load Allocation, thousand tons	Actual Load – Load Allocation, thousand tons	Total DMC Actual Load – Load Allocation, thousand tons
September to March Standard, 1000 µS/cm												
Oct	24.9	13.0	2.8	92	6.5	34.1	1.9	0.9	7	0.5	2.2	**36.3**
Nov	11.2	5.6	1.8	40	2.8	15.8	0.2	0.2	1	0.1	0.3	**16.0**
Dec	0.6	4.0	0.4	8	0.6	4.5	0	0.2	0	0	0.1	**4.6**
Jan	4.8	3.2	0.8	12	0.8	8.0	0	0.2	0	0	0.2	**8.2**
Feb	20.6	1.9	2.2	33	2.3	22.4	1.2	0.3	2	0.1	1.3	**23.7**
Mar	28.3	8.7	3.5	68	4.8	35.8	2.5	0.8	6	0.4	2.9	**38.6**
April to August Standard, 700 µS/cm												
Apr	25.1	6.6	5.2	75	5.3	31.7	1.6	1.6	7	0.5	2.7	**34.4**
May	38.1	13.8	7.1	122	8.6	50.4	3.3	2.1	12	0.9	4.5	**54.8**
Jun	45.4	13.3	8.1	134	9.5	57.3	3.9	3.1	14	1.0	6.1	**63.4**
Jul	31.4	10.0	4.8	160	11.3	34.9	2.8	2.6	17	1.2	4.2	**39.0**
Aug	35.6	12.5	4.1	130	9.2	43.1	3.0	2.5	13	0.9	4.6	**47.7**
September to March Standard, 1000 µS/cm												
Sep	42.6	14.2	2.7	133	9.4	53.1	2.7	1.7	9	0.6	3.8	**56.9**

E. Future Actions

The Upper San Joaquin River Restoration Program released environmental documentation in mid-2009 evaluating the impacts of the first set of environmental flow releases in October 2009.

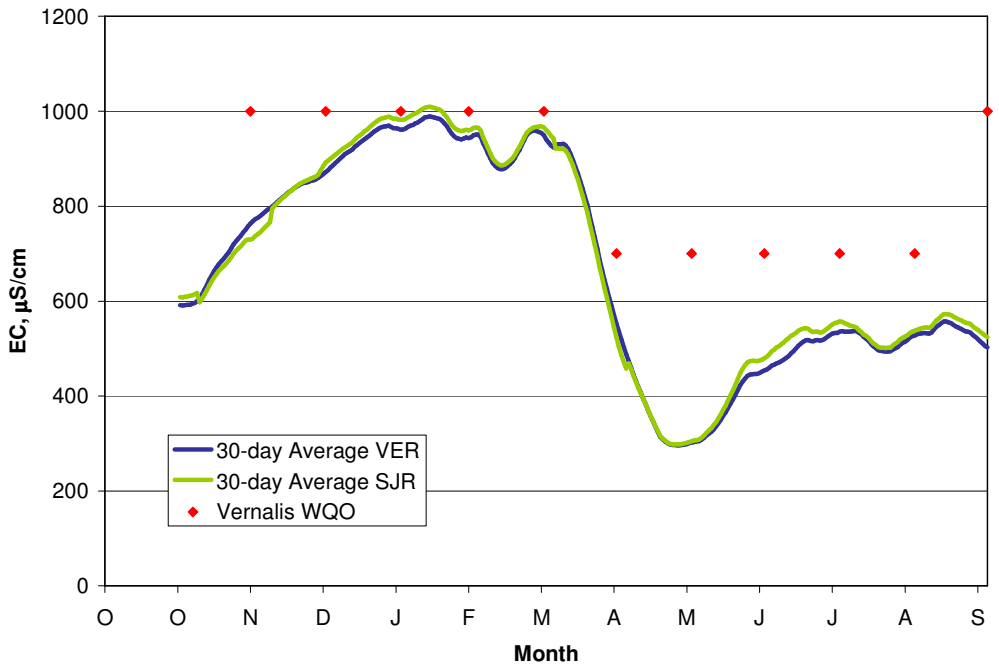
F. Vernalis Water Quality

2009 Conditions: The running thirty-day average salinity for 2009 was calculated using this methodology and is presented in Figure 1. The monthly mean EC for 2009 is presented in Table 7. 2009 was classified as a dry year for the San Joaquin River.

Table 7: WY 2009 Monthly mean EC at Vernalis, µS/cm

	Reclamation Station	DWR Station
September to March Standard, 1000 µS/cm		
Oct	594	611
Nov	763	730
Dec	872	892
Jan	961	936
Feb	943	960
Mar	949	966
April to August Standard, 700 µS/cm		
Apr	552	523
May	302	305
Jun	454	479
Jul	536	557
Aug	527	537
September to March Standard, 1000 µS/cm		
Sep	502	524

Figure 1: WY 2009 Vernalis Water Quality



G. Reporting Requirements

Reclamation has submitted timely quarterly reports for 2009, beginning with the first quarter of the 2009 calendar year.

H. Funding Reporting

Reclamation agreed in the MAA to seek additional funding, including grant funding, to support salinity control efforts. In its quarterly reports, Reclamation will report on its efforts to support the securing of additional funding.

2009 Activities:

- A funding request was submitted for the 2010 budget for WRDP.
- A funding request was submitted for the 2011 budget for WRDP.
- A funding request was submitted for the 2011 budget for administrative coordination and activities related to the RTMP.
- A funding request was submitted for the 2011 budget for the administration of the Grassland Bypass Project.

I. Monitoring Program

2009 Accomplishments: At the end of September 2009, Reclamation awarded a contract to Montgomery Watson Harza to complete an assessment of the sources

and fate of salts throughout the Northwest and Westside subareas. As part of this work, salinity monitoring gaps will be identified.

H. Summary

Within the MAA is a goal for Reclamation to offset or reduce DMC excess loads by 25 percent by July 2010. For Water Year 2008, Reclamation engaged in actions that altogether offset loads from the DMC by over 75%. For Water Year 2009, Reclamation engaged in actions that altogether offset loads from the DMC by approximately XX[2]%.

Table 14: Example of Calculated Loads and Assimilative Capacity of Individual Draft Plan Elements for WY2008, thousand tons of salt

	DMC Load over Allocation	A-1: New Melones	A-2: WAP	B-3: WRDP (annual only)	Vernalis average Salinity, µS/cm
September to March Standard, 1000 µS/cm					
Oct	36.3	11.5	9.5		594
Nov	16.0	0.8			763
Dec	4.6	1.5			872
Jan	8.2	0			961
Feb	23.7	0			943
Mar	38.6	0.8			949
April to August Standard, 700 µS/cm					
Apr	34.4	12.6			552
May	54.8	0			302
Jun	63.4	18.2			454
Jul	39	8.9			536
Aug	47.7	2.6			527
September to March Standard, 1000 µS/cm					
Sep	56.9	13.1			502
TOTAL	423,744	70,081	9,464	Not yet available	

[2] Cannot be completed until the end of December, when the Grassland report is released. Grassland salinity is reported on an annual basis, while this report is on a calendar year basis, so there is not a strict correlation.